

## WHAT IS CLAIMED IS:

1. A regulation apparatus for ATM cell delay variation in an ATM (Asynchronous Transfer Mode) multiplex communications system, wherein multimedia information including sound, image, and data is transformed into cells upon transmission and transferred in the unit of cells, and the cells are reproduced to original information upon reception, thereby performing a communication, said apparatus comprising:

a delay variation regulating buffer for temporarily storing cells received from an ATM network; a variation waiting timer for controlling a waiting time which extends from the time a first cell is received by said delay variation regulating buffer to the time read-out of cells is started;

a read-out timer for controlling intervals at which the cells are read out after the read-out of the cell is started; and

communication type discriminating means for discriminating a type of a communication to be performed and for setting times appropriate to the discriminated communication type to said variation waiting timer and said read-out timer, respectively, said communication type discriminating means changing the waiting time for regulating a delay variation, set to said variation waiting timer, depending on a discriminated communication type.

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2. A regulation apparatus for ATM cell delayvariation according to claim 1, wherein said communication type discriminating means calculates the waiting time which extends from the time the first cell received from the ATM network is transferred to said delayvariation regulating buffer to the  
5 time the readout of the cells is started, from a transmission speed and an acceptable cell loss probability when the communication type is sound or moving images.

3. A regulation apparatus for ATM cell delayvariation according to  
10 claim 1, wherein said communication type discriminating means employs a maximum cell delay time assured by the provider of said ATM network for the waiting time which extends from the time the first cell received from the ATM network is transferred to said delayvariation regulating buffer to the time the read-out of the cells is started, when the communication type is a file  
15 transfer.

4. A regulation apparatus for ATM cell delayvariation according to claim 1, wherein said communication type discriminating means set zero to the waiting time which extends from the time the first cell received from

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the ATM network is transferred to said delayvariation regulating buffer to the time the readout of the cells is started, when the communication type is remote terminal processing.

- 5           5.     A regulation apparatus for ATM cell delayvariation according to claim 2, wherein said communication type discriminating means sets said variation waiting time  $t$  expressed by the following equation to said variation waiting timer, when the communication type is sound or moving images:

$$t = -\ln(p)/\lambda$$

- 10    where  $p$ :   an acceptable cell loss probability and

$1/\lambda$ :   an average cell arrival interval.

6.     A regulation apparatus for ATM cell delayvariation according to claim 1, wherein said communication type discriminating means  
15   discriminates a communication type set in a call set-up request in a call set-up phase to calculate a variation waiting time.

7.     A regulation apparatus for ATM cell delayvariation according to claim 1, further comprising dummy cell inserting means, said dummy cell

inserting means preserving a cell which reaches last so as to insert said last reaching cell instead if new cell has not reached during the variation waiting time.

- 5           8.     A cell multiplexing/demultiplexing apparatus for reproducing cells received from an ATM network to multimedia information and for transferring the multimedia information to a terminal connected thereto, comprising:

                  the regulation apparatus for ATM cell delayvariation according to  
10   claim 1.

9.     A multimedia terminal for reproducing cells received from an ATM network to multimedia information, comprising:

                  the regulation apparatus for ATM cell delayvariation according to  
15   claim 1.

10.    A regulation method for cell delay variation for an ATM multiplex communications system for performing transmission and reception of multimedia information, comprising the steps of:

classifying a cell by discriminating based on a communication type whether data contained in the cell is sound/moving images, data to be transferred in the form of file, or data for remote terminal processing; providing, for each communication type, a delay variation regulating buffer

5 for temporarily storing cells received from an ATM network and a variation waiting timer for controlling a waiting time which extends from the time a first cell is received by said delay variation regulating buffer to the time read-out of cells is started; and

calculating the waiting time for regulating a delay variation for each

10 communication type, and setting the calculated waiting time to said variation waiting timer.

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